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Project 4789377474.1

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REPORT

on

LIGHT-EMITTING-DIODE SURFACE-MOUNTED LUMINAIRES

NERI SPA  
LONGIANO FC, ITALY

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## DESCRIPTION

PRODUCT COVERED:	USL, CNL - LED Surface-mounted Luminaire, pole.	
MODELS COVERED /NOMENCLATURE:	Series "Nebula L", models:  - Nebula L ST; - Nebula L PR; - Nebula L A; - Nebula L RGBW;	
ENVIRONMENTAL RATING:	Suitable for Wet locations	
GENERAL CONSTRUCTION:	This product complies with the applicable Standards for USL and/or CNL luminaires as explained under the "Technical Considerations" section noted below, the Section General pages (if provided), the UL 1598 FUII (Follow-Up Inspection Instructions), and the Description within this report.	
TECHNICAL CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):	USL indicates product complies with the Standard for Luminaires, UL 1598 and the United States country specific requirements contained within the Standard, along with the relevant parts of the UL Standard for Light Emitting Diode (LED) Equipment for Use in Lighting Products, UL 8750.	CNL indicates product complies with the Standard for Luminaires, CSA C22.2 No. 250.0 and the Canadian country-specific requirements contained within the Standard, along with the relevant parts of the Canadian Standard for Light Emitting Diode (LED) Equipment for Lighting Applications, CSA C22.2 No. 250.13.

ELECTRICAL RATINGS:			
	Model	Maximum Ratings	LED type
	Nebula L ST	48 W, 120-277 Vac, 50/60Hz	1 x CMA3090
	Nebula L PR	48 W, 120-277 Vac, 50/60Hz	1 x CMA2550
	Nebula L A	48 W, 120-277 Vac, 50/60Hz	24 x XB-D
	Nebula L RGBW	56 W, 120-277 Vac, 50/60Hz	6 x XML color
MARKINGS:	In accordance with the FUII's, the UL 1598 Standard and the following.  SUITABLE FOR WET LOCATIONS (Verbatim)		
INSTRUCTIONS:	In accordance with the Standard. Shall also indicate the proper dimming method to regulate the luminous flux during the installation, which shall be demanded to qualified personnel only.		

Photo #	CONSTRUCTION FEATURE:	TECHNICAL DATA and/or DESCRIPTION
		The general design, shape and arrangement shall be as shown and as described. All dimensions are nominal, within engineering tolerances, except where specifically indicated as a minimum or a maximum.
1, 2, 3	Luminaire Body	Made of aluminum, composed by three main parts: First part: Back cover, shaped as shown in Ill.1, intended as fixing and supporting means; Second part: Middle tube, shaped as shown in Ill.2, intended as enclosure and luminaire body's main part; screwed to the First part. Third part: Top termination, shaped as shown in Ill.3, intended as luminaire body's closure and screen/diffuser support; screwed to the Second part.
2	Body termination (optional)	Any shape and material, intended as aesthetic termination of Luminaire Body, located outside the Luminaire body screwed to his Third part (see Ills. 4 and 5 for an examples of possible shapes).
3	Diffuser	Tempered flat glass, Shaped as shown in Ill.6, min. 6 mm thick. Fixed to the Third part of Luminaire Body by Silicon Adhesive. Any color or finishing
2	Component Mounting Plate	Galvanized steel, minimum 1 mm thick., shaped as shown in Ill.7. Fixed to Luminaire Body's Back cover by screws, intended as fixing plate for components.  Alternate: Same as above except with different length and holes disposition, depending by the light source installed.
	Plastic Reflector (optional)	Made of R/C (QM/Z/CN) Polycarbonate, by SABIC INNOVATIVE PLASTICS B V (E466937), model 123R, Rated HB, max 120°C. Any shape, located into the Luminaire Body between the light source and the glass Diffuser.
	Grounding/Bonding	In accordance with the Standard.
	Labels	PGDQ2/CN or PGJI2/CN suitable for surface, environment.
	Coupler joint (optional mechanical accessory)	Made of metal, shaped as shown in Ill.8, for fixing of Luminaire body to the mounting surface and/or mechanical assembly of two of them.
	Heatsink	Made of metal, shaped as shown in Ill.9, intended as heatsink of LED sources, one provided in luminaires model Nebula L ST and Nebula L PR, fixed by screws on the top of Component Mounting Plate.
	Gaskets	Made of silicon rubber, shaped as shown in Ill.10, located between each external mechanical coupling.

# photo	COMPONENTS	TECHNICAL DATA and/or DESCRIPITON
		Components described as R/C (by CCN identifier) or Listed must be UL Certified for the USA. Unless otherwise specified, components described as /CN must be UL Certified for Canada or CSA Certified.
	Supply connector (optionally provided)	Listed (CYJV/CN) E355693, manufactured by TECHNO SRL, model THB.387.A5A.L + THB.387.B5A.L, rated 400V, 10A, located on the external extremity of Supply Cord.
	Supply Cord	Any Listed (ZJCZ/CN), type SJTW, min 3 or 4 or 5x18AWG, rated min 300 V, 60°C.
	DMX signal cable (optional)	Any Listed (ZJCZ/CN), type SJTW rated min 300 V, 60°C.
	Strain Relief	Liquid tight Cord grip - Listed (QCRV/CN), by BIMED TEKNIK ALETTLER SAN TIC A S (E199260), model BS-15. Trade size PG13.5. One or two provided Alternate: Liquid tight Cord grip - Listed (QCRV/CN), by U I LAPP GMBH (E79903). Model ST-pg13.5.
	Internal Wiring (Primary circuit)	Any Listed (ZJCZ/CN) cord type min. SPT-2 or R/C (AVLV2/CN), rated min. 18 AWG, 300 V, 90°C.
	Internal Wiring (Secondary circuit)	Any located in a Class 2 circuit rated min. 24 AWG, 60V, 105°C, located between LED driver output and LED source.
	Terminal Block (for internal connection in primary circuit)	R/C (XCFR2/CN) manufactured by Wago Kontakttechnik GmbH, (E45172) model 261 or 264, rated 300V, 15A, and min. 60°C; snap fitted into Component mounting plate and secured to main body by screws.  Alternate: R/C (XCFR2/CN), manufactured by ADELS-CONTACT ELEKTROTECHNISCHE FABRIK GMBH & CO. KG (E63492), model LK 980-01, rated 600 V, 15 A, 105°C  Alternate: any Listed (ZMVV/CN), rated min 300V, 10 A, min. 90°C
	Terminals (secondary circuit)	Any located in a Class 2 circuit, rated min 60V, 2 A, min. 90°C

	COMPONENTS	TECHNICAL DATA and/or DESCRIPITON (CONT'D)
	Surge Protector (Optionally provided)	<p>R/C (VZCA2/CN), manufactured by LITTLEFUSE INC (E320116), model LSP10277P, type 4CA, rated 277 Vac, MCOV 320 Vac, 85°C. Secured to Component mounting plate.</p> <p>Alternate: Same as above except for: model LSP10120P, type 4CA, rated 120 Vac, MCOV 150 Vac, 85°C.</p> <p>Alternate: R/C (VZCA2/CN), manufactured by INVENTRONICS (HANGZHOU) INC (E467129), model PU-20KS10KHT, type 5, rated 277 Vac, MCOV 320 Vac, 85°C.</p>
	LED Driver (for models Nebula L ST, Nebula L PR and Nebula L A)	<p>R/C (FKSZ2/CN) by OSRAM SPA (E466937), model OT 50/120-277/1A2 2DIMLT2 P, Class 2 type, damp, with leads. Rated Input 120-277 Vac, 50/60 Hz, 0.5 A; Output 20-55 Vdc, constant current 0.6-1.25 A (set at max 1250 mA).</p> <p>Alternate: Only for models Nebula L ST, Nebula L A, R/C (FKSZ2/CN) by EFORE SPA (E330583), model RTLD040-900A-SA(-xx), Class 2 type, damp, with leads. Rated Input 120-277 Vac, 50/60 Hz, 0.4 A; Output 25-56 Vdc, constant current 0.15-0.9 A. (set at max 900 mA)</p> <p>Alternate: Same as above except: model RTLD040-900A-Dx-xx, with connectors.</p> <p>Alternate: Only for model Nebula L PR, R/C (FKSZ2/CN) by EFORE SPA (E330583), model RTLD040-1400A-SA(-xx), Class 2 type, damp, with leads. Rated Input 120-277 Vac, 50/60 Hz, 0.4 A; Output 20-43 Vdc, constant current 0.2-1.4 A (set at max 1250 mA).</p> <p>Alternate: Same as above except: model RTLD040-1400A-Dx-xx, with connectors.</p>

	COMPONENTS	TECHNICAL DATA and/or DESCRIPITON (CONT'D)
	LED Module (for model Nebula L ST)	<p>R/C (OOQL2/CN) by CREE INC (E349212), model CMA3090, COB, rated max 3600 mA, Vf 48 Vdc, driven at max 900 mA, Located in a Class 2 circuit.</p> <p>Alternate: R/C (OOQL2/CN) by CITIZEN ELECTRONICS CO LTD (E358566), model CLU04J-1812C9, COB, rated max 2160 mA, Vf 54 Vdc, driven at max 900 mA, Located in a Class 2 circuit.</p> <p>Alternate: Any located in a Class 2 circuit with same characteristics</p>
	LED holder (for model Nebula L ST)	<p>R/C (ECBT2/CN) by TYCO ELECTRONICS CORP (E28476), model 2828 Z50 (2213480-2), rated 300 Vdc, 2 A, 105 °C, located in a Class 2 circuit.</p> <p>Alternate: Any located in a Class 2 circuit with same characteristics</p>
	LED Module (for model Nebula L A)	<p>Located in a Class 2 circuit, composed by a circular PWB metal clad, approx. 88 mm diam., equipped with twentyfour LED chips by CREE INC model XB-D, each rated max 1 A, Vf 2.3 Vdc, series connected and driven at max 700 mA</p> <p>Alternate: Any located in a Class 2 circuit with same characteristics</p>
	LED Module (for model Nebula L PR)	<p>R/C (OOQL2/CN) by CREE INC (E349212), model CMA2550, COB, rated max 3300 mA, Vf 34 Vdc, driven at max 1250 mA, Located in a Class 2 circuit.</p> <p>Alternate: R/C (OOQL2/CN) by LUMILEDS MALAYSIA SDN BHD (E352519), model L2C5-30801211x19xx, COB, rated max 3300 mA, Vf 34 Vdc, driven at max 1250 mA, Located in a Class 2 circuit.</p> <p>Alternate: R/C (OOQL2/CN) by CITIZEN ELECTRONICS CO LTD (E358566), model CLU03J-1210C9, COB, rated max 1800 mA, Vf 36 Vdc, driven at max 1250 mA, Located in a Class 2 circuit.</p> <p>Alternate: Any located in a Class 2 circuit with same characteristics</p>

	COMPONENTS	TECHNICAL DATA and/or DESCRIPITON (CONT'D)
	LED holder (for model Nebula L PR)	R/C (ECBT2/CN) by TYCO ELECTRONICS CORP (E28476), model Z50, rated 300 Vdc, 5 A, 105 °C, located in a Class 2 circuit.  Alternate: Any located in a Class 2 circuit with same characteristics
	LED Driver (for model Nebula L RGBW)	R/C (FKSZ2/CN) by ELDOLED (E333135), model POWERdrive 561/S, Class 2 type, damp. Rated Input 100-277 Vac, 50/60 Hz, 0.7 A; Output 4 channels each 2.5-57 V, constant current 0.2-1.05 A (set at max 750 mA) max output power 50W.
	LED Module (for model Nebula L RGBW)	Located in a Class 2 circuit, composed by a circular PWB metal clad, approx. 88 mm diam., equipped with six LED chips by CREE INC model XML Color (RGBW), each rated max 1 A, Vf 2.25-3.3 Vdc, each color series connected and driven at max 750 mA  Alternate: Any located in a Class 2 circuit with same characteristics



## Photos

Photo 1

Luminaire  
overview

Photo 2

Luminaire  
overview  
(fully  
disassemb  
led)

Photo 3

Luminaire  
overview  
(top)



Photo 4

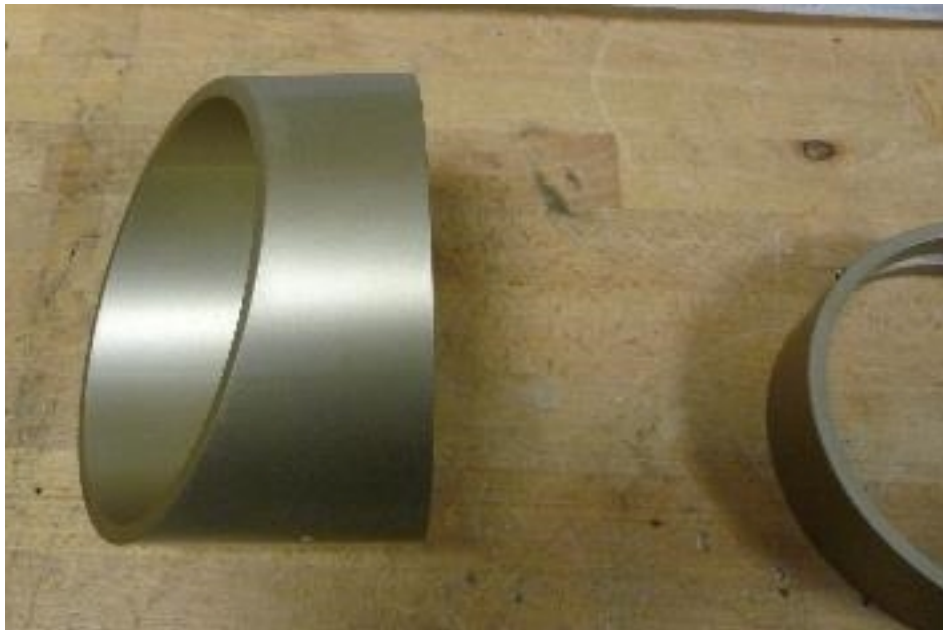


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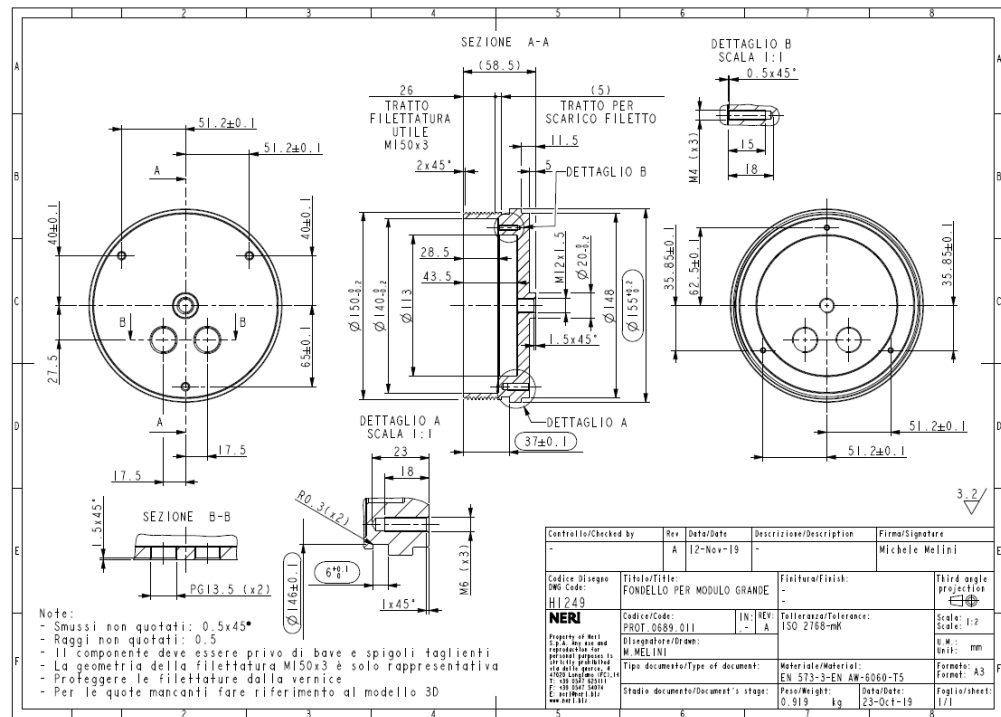


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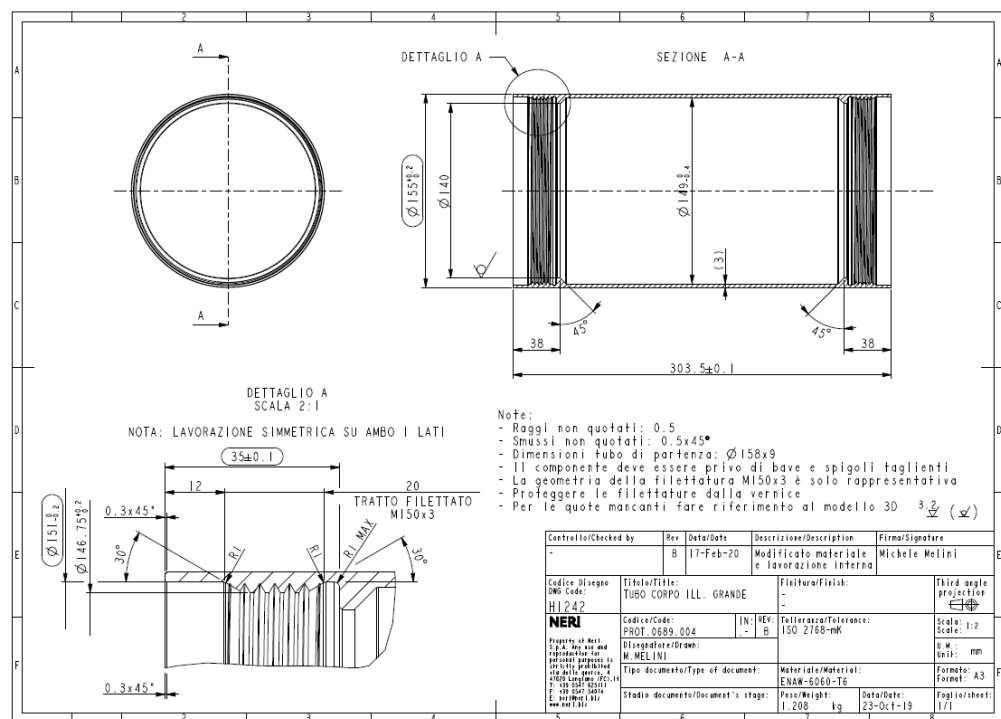


## Illustrations

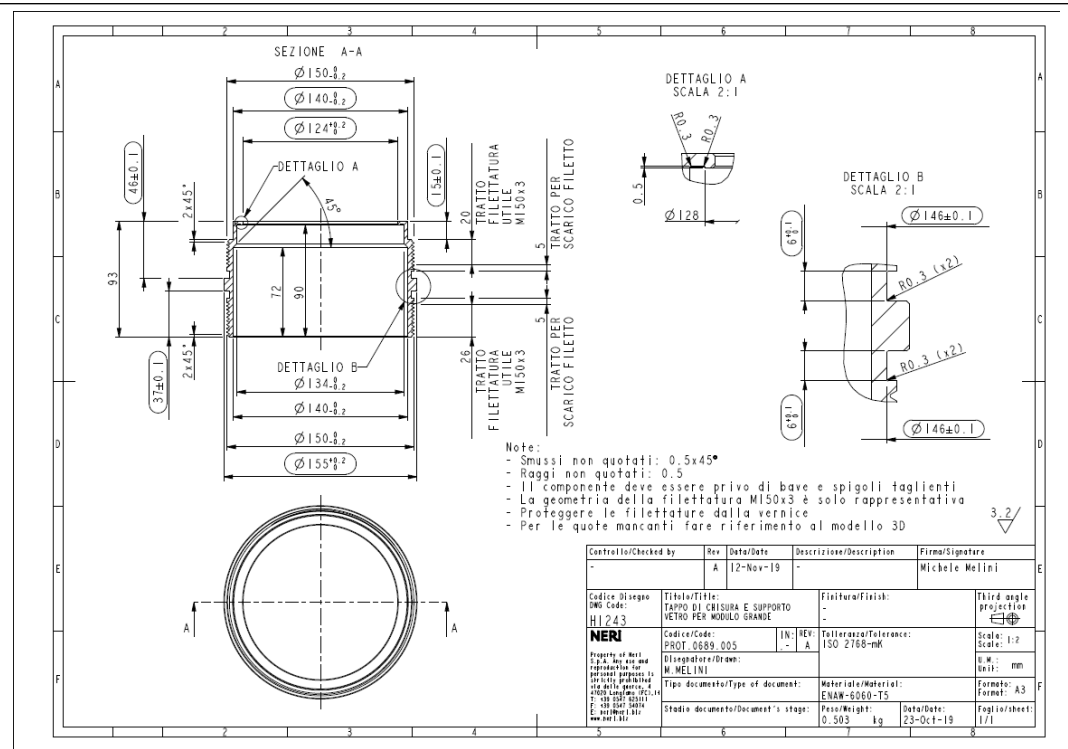
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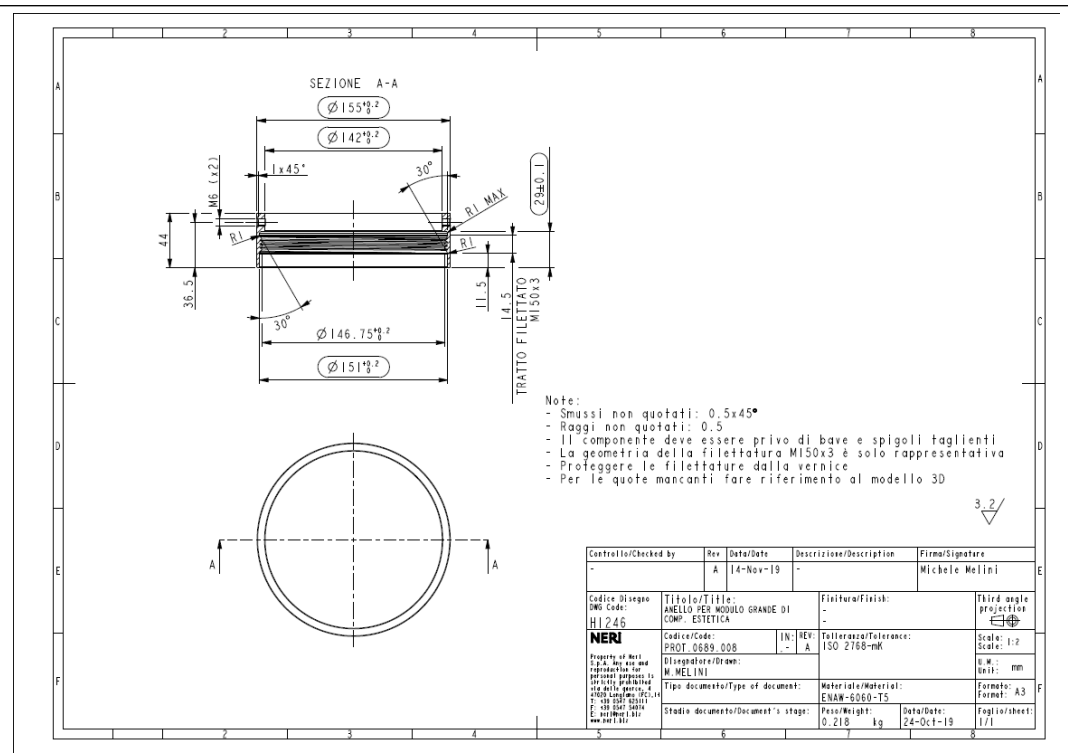
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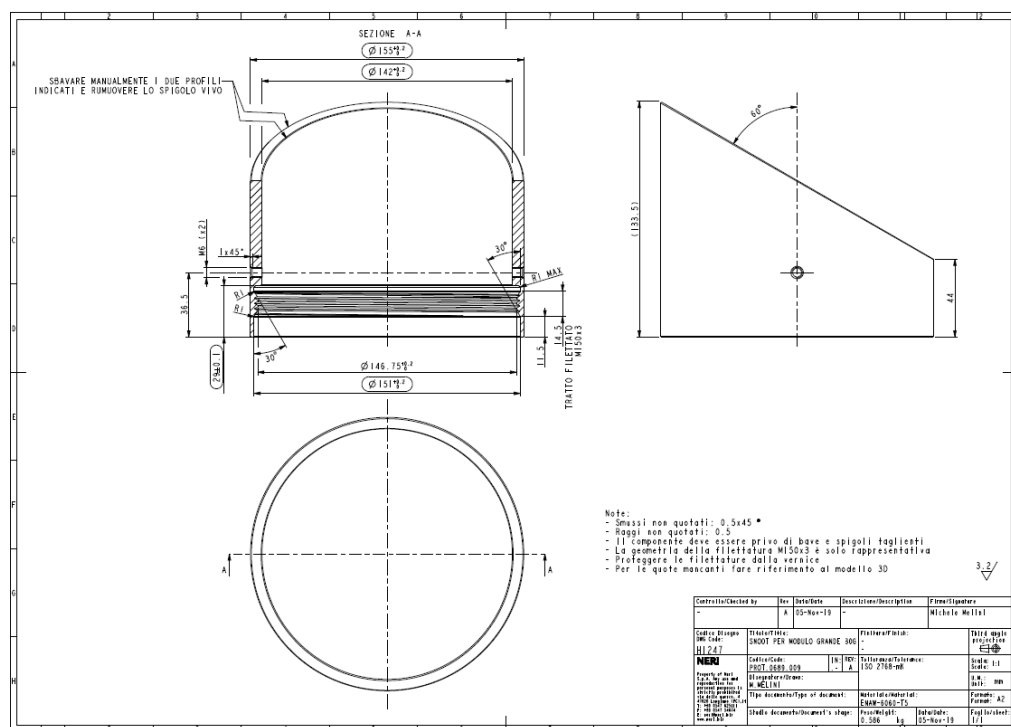


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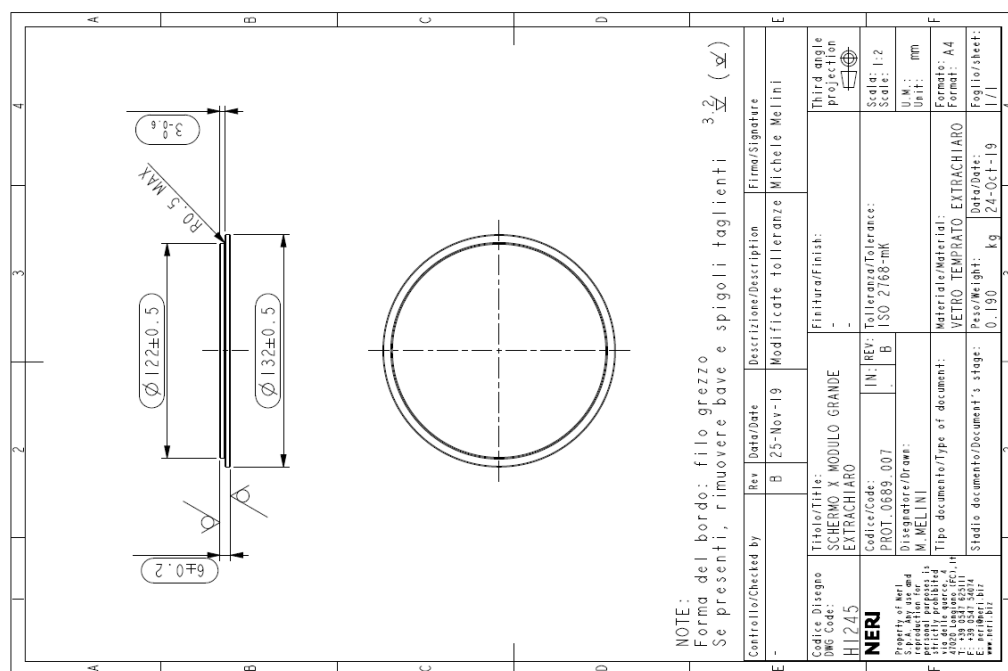


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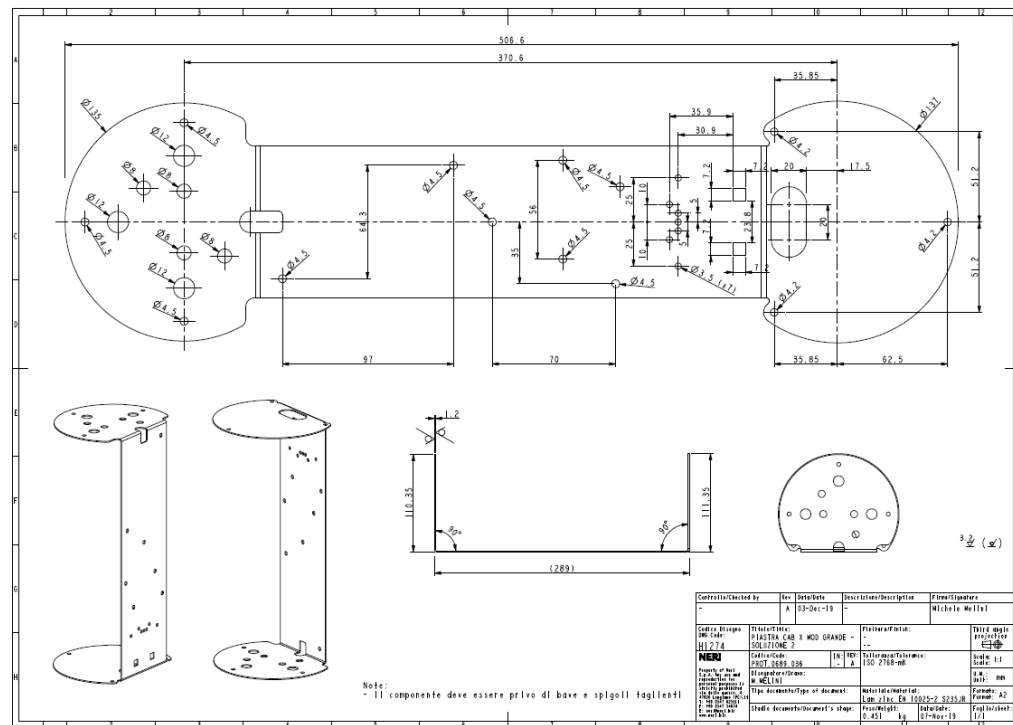
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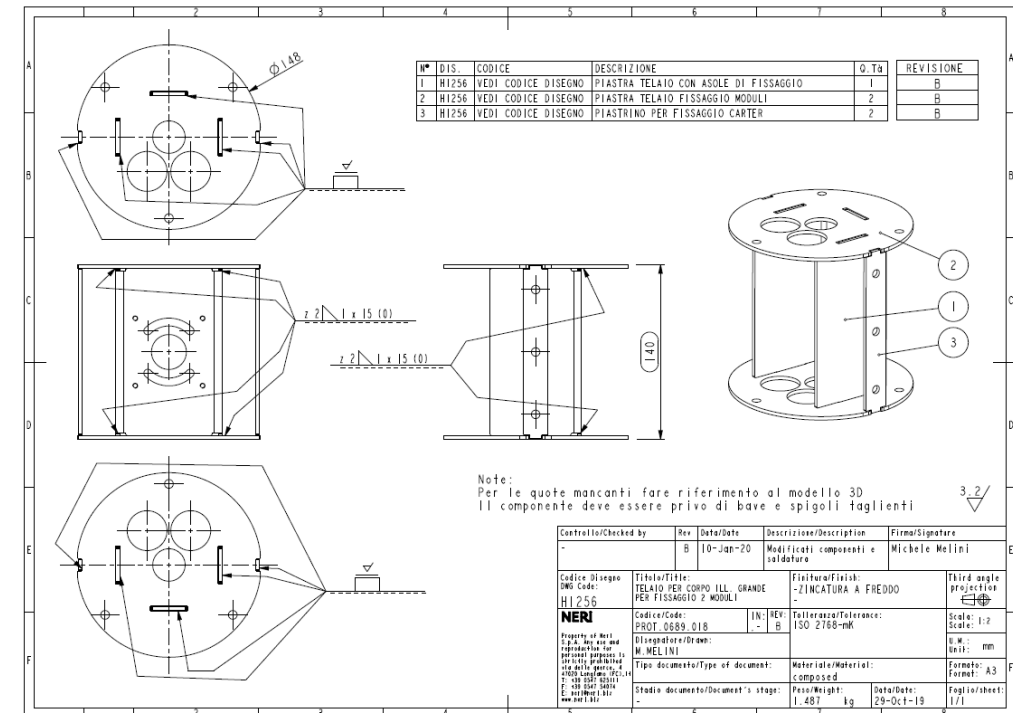
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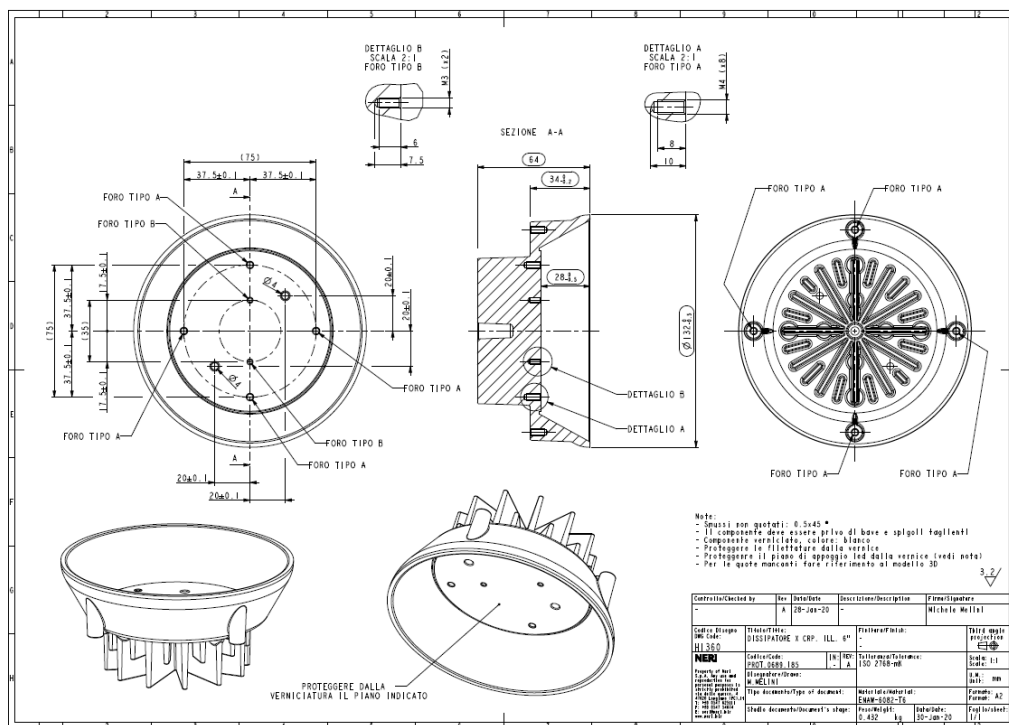
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I11.8



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111.9

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111.10